

FWS/R6
ES/UT
7-FA-0186

May 1, 2007

Resource Development Coordinating Committee
Governor's Office of Planning and Budget
5110 State Office Building
Salt Lake City, Utah 84114

RE: Mineral Lease, near Clyman Bay (Gunnison Bay), Great Salt Lake

Dear Resource Development Coordinating Committee Members:

The U.S. Fish and Wildlife Service (USFWS) has reviewed your notice describing the Great Salt Lake Minerals Potassium Sulfate Expansion Project (Project) and its associated lease nomination. The nomination received by Division of Forestry, Fire and State Lands (Division) and now being reviewed by the Resource Development Coordinating Committee (RDCC) requests the lease of 23, 088 acres in the bed of the north arm (Gunnison Bay) of the Great Salt Lake (GSL). GSL Minerals' intent of leasing this land is to expand its solar evaporation operations for mineral extraction of brines from lake waters. The proposal involves the construction of dikes, feed channels, and pump stations similar to operations GSL Minerals currently has in Clyman Bay and in Bear River Bay. The Division and RDCC are currently seeking comments and stipulations appropriate for leasing this area.

The USFWS has been participating in development and review of the Project since December 2006 when an environmental permitting meeting and field trip was held with personnel from US Army Corps of Engineers (Corps), Utah Division of Wildlife Resources (UDWR), GSL Minerals and their consultant, BIO-WEST, Inc. During the meetings and field trip the USFWS discussed the resource issues and concerns that we believe need to be addressed in the environmental reviews for the Project. Based on our earlier comments and our review of the subject notice, we provide the following response for your consideration. Our comments are made pursuant to our authorities under the Endangered Species Act of 1973, as amended, the Migratory Bird Treaty Act, the Clean Water Act, and the Bald and Golden Eagle Protection Act. These comments reflect the potential for environmental impacts resulting from issuance of a new lease and future Project operations.

As you are aware, the lease request in Clyman Bay of 23,088 acres is part of a larger project that proposes to add and additional 8,000 acres of evaporation ponds in Bear River Bay. Due to permitting requirements under the Clean Water Act, GSL Minerals has been working with the Corps and UDWR to assess effects of this expansion and to determine what mitigation may be necessary, if any. BIO-WEST, Inc. is currently assessing fish and wildlife data that are currently available via state and federal agencies, and they are also conducting bird use surveys from the shores of Clyman and Gunnison bays and by helicopter for Bear River Bay. Existing and new fish and wildlife use data will be analyzed in a NEPA document that will likely cover the entire project. Hence, a substantial amount of biological information will be compiled to assess the requests that the entire Project be evaluated by RDCC and the Division to determine its effects on the GSL ecosystem prior to a lease being granted. The remainder of this correspondence details the resource areas that should be included in an evaluation. **The National Environmental Protection Act requires an assessment of environmental impacts on projects such as this one. The Record of Decision for the leasing of this land for evaporative pond expansion in Clyman Bay is only that: leasing of land. The affects on the environment still needs to be analyzed and will be done through the Environmental Impact Statement required by the Army Corps of Engineers. To require one from our Division also seems like overkill.**

Water Quality

During preliminary project meeting discussions, GSL Minerals agreed to conduct some limited water quality sampling to obtain information regarding the status of their current discharges to Bear River Bay. We have reviewed these data as presented in the Water Quality Monitoring Report for GSL Minerals (four page report from BIO-WEST, Inc.) And have the following comments. First we appreciate GSL Minerals' efforts to collect and analyze water for mercury and selenium, which are two elements of concern for the GSL. Both mercury and selenium bioaccumulate in living organisms at much higher concentrations than measured in water, and results from recent scientific studies suggest elevated concentrations of mercury are present in GSL and may be taken up by waterfowl and other birds. Also, the State of Utah is developing a numeric water quality standard for selenium for the GSL. The concern with the flushing of brines from GSL Minerals' solar ponds is that mercury and selenium may be concentrated in the remaining brines and flushed back to Bear River Bay and GSL in a plume. Due to their interactions in the environment, these elements are readily incorporated and efficiently recycled in the food web so even a short-term pulse will have lasting affects. Based on the available data collected by BIO-WEST, Inc, selenium concentrations in water were below the freshwater water quality standard of 5 parts per billion; however, the detection limit for mercury (.02ppb) was sixteen times higher than the freshwater water quality standard of .012ppb. Recent USGS sampling has found mercury in the South Arm to be as high as 0.1 ppb which is considered elevated, yet it is still half the detection limit here. Based on these observations, our recommendations for additional pre-lease sampling and long term monitoring include: 1) lowering the detection limit for mercury to the freshwater water quality standard of 0.012 ppb; 2) collecting samples within the first few days of flushing rather than the last few days; and 3) sampling effluent from ponds in Gunnison Bay if they are flushed. If unacceptably high levels of contaminants are detected, lease stipulation should specify avoidance, minimization, and

mitigation measures with additional monitoring.

Flushing the bitterns from solar ponds in the Clyman Bay and Gunnison Bay would keep any contaminants in the north arm. It should be noted that the evaporative process adds no contaminants to the water, nor removes any contaminants, it merely removes the water molecules leaving salts and other elements behind. There is a 2 - 3 % increase in concentration of the brines in the west ponds before they are placed in the Behren's Trench for its 21 day trek to the east ponds. This Record of Decision does not address the flushing of ponds on the east side ponds. Preliminary data from the USGS taken from the north arm at the east and west culverts showed total mercury levels in the 22 ng/L range (22 parts per trillion) which is lower than the water quality standard of .012 parts per billion for freshwater systems. Data will continue to be collected in the north arm.

More salts are removed annually from the Great Salt Lake than are added by inflows and natural processes. Furthermore, some salts are harvested disproportionately to their concentration in the lake and their ability to be replenished. We recommend the long-term effects of this proposed Project, in conjunction with existing mineral operations throughout the lake (i.e. cumulative effects), be evaluated to assess the impact on salt concentrations and proportions of minerals in the lake and how changes in these might affect the lake and its biotic community (e.g. algae, brine shrimp, brine flies, and birds).

Salt budget monitoring continues to occur throughout the lake and it has indicated that the greatest influence to salinity in the lake remains the lake level, not salt mining.

As we understand the proposed Project, flushing of the northern-most expanded solar evaporation ponds in Bear River Bay would occur directly into Bear River Bay near the Willard Spur. This would likely increase the salinity within the Bay and may adversely affect macrophytes, invertebrates and fish, and indirectly affect waterfowl and piscivorous birds by decreasing food availability. We recommend that prior to granting any new lease, the impact of adding these brines on the water quality in the Bay be modeled. The model should evaluate a range of scenarios with an emphasis on average and less than average runoff years and also evaluate the effects during multiple successive years of drought.

The record of decision only affects the Clyman Bay/Gunnison Bay portion of the Great Salt Lake Minerals Expansion project. Comments on the environmental impacts on the Bear River Bay should be directed to the Environmental Impact Statement that will be done in conjunction with the Army Corps of Engineers permitting process.

Migratory Birds

The Great Salt Lake provides a robust habitat for migratory birds that is unique in the intermountain area. Site specific data for avian usage of Gunnison Bay is fairly limited aside from information regarding the American white pelican and other birds that nest on the bay's islands (Dolphin, Cub, and Gunnison). The limited information that does exist indicates that Clyman Bay and the western shore of Gunnison Bay have the potential to provide foraging and nesting habitat for shorebirds including the snowy plover and the American avocet. In addition, Gunnison Island is one of the premier breeding colonies for American white pelican in North America. Because of this, in 1977 the Utah State Legislature passed the Pelican Management Act which directs the protection and management of GSL pelican populations and provides for the

protection of Gunnison Island specifically for pelicans. Any environmental analysis should consider impacts to the breeding colony of pelicans on Gunnison Island and to other shorebirds along the shoreline and at springs and wetlands within Clyman and Gunnison bays. Furthermore, if lake levels rise like they did in the mid-1980's, the south arm of the GSL may become too fresh to support large populations of brine shrimp; subsequently, salinities in the north arm may decline to levels that would support large numbers of brine shrimp which would attract large numbers of birds. The analysis of evaporation pond expansion in Clyman and Gunnison bays should consider how migratory birds would be affected under this scenario.

The Mineral Leasing Plan and the Comprehensive Management Plans for Great Salt Lake required a buffer around Gunnison Island to protect American white pelicans from human activities related to mineral leasing (or any activities for that matter). The proposal does not compromise that buffer, and even creates an additional mile buffer between Gunnison Island and the proposed site.

Bear River Bay is highly important to waterbirds. The area is used by Canada geese for molting with more than 10,000 counted during some years in the late 1990's. The Bay provides aquatic habitat for a fishery similar to that of the Bear River and thus provides forage for several species of piscivorous birds. The area is also important foraging and resting habitat for other waterfowl due to the fresh water, aquatic macrophytes, and other aquatic biota that exist in the bay.

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Any lease granted for evaporation pond expansion should be based on an analysis that specifically evaluates Project effects to all migratory bird species, including those listed above. The analysis should provide a plan for long term monitoring of avian resources relative to potential project impacts as well as a mitigation plan for potential project impacts to migratory birds. For example, it should evaluate noise and visual effects from project activities, habitat reduction and fragmentation, and whether habitat enhancement efforts may minimize displacement impacts for some species. Habitat impacts for species on the Service's 2002 list of Birds of Conservation Concern (BCC) and Partners In Flight Priority Species should be evaluated as part of the analysis. The BCC List identifies those migratory and non-migratory avian species that without additional conservation actions are likely to become candidates for listing under the ESA. To help meet responsibilities under Executive Order 13186, lease stipulation should include provisions which: recommend ground-disturbing activities occur outside critical breeding seasons for migratory birds; minimize temporary and long-term habitat losses; and require mitigation for unavoidable habitat losses, particularly at the field development stage. Mitigation should include the option for offsite, in-kind habitat compensation.

Noise and visual effects of the proposed project will be no different than existing effects from other salt producers around the lake. Perhaps even less impacts because of the relative remoteness of the site not just from human interaction, but from wildlife also. There is little available fresh water, and vegetation is also sparse and provides little cover. Because the dikes will be constructed on areas devoid of vegetation, there is no significant impact on habitat. The Division of Wildlife Resources indicated in their comments that there is evidence that diking

provides some habitat for nesting of gulls.

Habitat Fragmentation and Disturbance

The analysis should identify the amount, location, and time frame of temporary disturbance as well as permanent facilities that could result from the proposed action. Displacement of wildlife across a large area during critical times, such as breeding, could prove a significant impact. If wildlife are displaced, it is likely that the area to which they move is inhabited by other wildlife or disturbed by other ongoing activities. Depending on the season and species, displacement could lead to nest abandonment, inter-and intra-specific competition, reproductive failure, and possible mortality. American white pelican are known to be highly susceptible to human related disturbance. In addition, the cumulative effects of other projects in the area may limit the availability of alternative sites for displaced wildlife.

Lake level provides far more impact to displacement of wildlife than diking or evaporative ponds. When the lake level changes significantly for the birds, they, being opportunistic organisms, adapts accordingly by moving where the required habitat is for nesting and foraging.

Aquatic Habitat

Because the Great Salt lake and the Bear River Bay inflow area contain significant wetlands and littoral and riparian areas, we recommend lease stipulations be developed to avoid any wetland losses in accordance with Section 404 of the Clean Water Act, Executive Order 11990 (wetland protection) and Executive Order 11988 (floodplain management) as well as the goal of “no net loss of wetlands.” Riparian and littoral areas are some of the most productive wildlife habitat types in North America. Riparian and littoral vegetation plays an important role in protecting streams and lakes, reducing erosion and sedimentation as well as improving water quality, maintaining the water table, controlling flooding, and providing shade and cover. In view of their importance and relative scarcity, impacts to riparian and littoral areas should be avoided. Unavoidable impacts should be fully mitigated.

Any lease granted for evaporation pond expansion should be based on an analysis of the effects to fish and wildlife and their habitat which result from Project development and current mineral extraction activities on the lake including the operations of GSL Minerals Corporation and other operations such as US Magnesium and Morton Salt, etc. In particular this analysis should be done relative to impacts on algae and brine shrimp lakewide, and for aquatic macrophytes, fish and other aquatic biota in Bear River Bay.

The record of decision only affects the Clyman Bay/Gunnison Bay portion of the Great Salt Lake Minerals Expansion project. Comments on the environmental impacts on the Bear River Bay should be directed to the Environmental Impact Statement that will be done in conjunction with the Army Corps of Engineers permitting process.

Cumulative Impacts

The combined, incremental effects of human activity, referred to as cumulative impacts, have the potential to pose a serious threat to the GSL environment. While they may be insignificant individually, cumulative impacts accumulate over time and space, from one or more sources, and can result in the degradation of important resources. Because of this, cumulative impacts analysis should be done prior to any lease being granted. The cumulative impacts discussion should, at a

minimum, include evaluations within the region of influence of the proposal for: potential for additional fish and wildlife impacts due to energy development including oil and gas in the GSL; impacts from increased habitat fragmentation; displacement of wildlife; and cumulative effects of lake level changes on project affected resources.

The intent of the Great Salt Lake Comprehensive Management Plan was to examine the lake in a holistic way, looking at the environmental and economic impacts of the lake while providing for conflicting uses in accordance with the Public Trust Doctrine. If there is new information that changes the management direction outlined in the plan, that information should be brought forward, examined and the plan amended if warranted.

Conclusion

Based on the proceeding information, USFWS requests that the Clyman Bay lease be held in abeyance until RDCC and the Division can collect information necessary to properly analyze the effects of expanding GSL Minerals' evaporation ponds as well as how long-term operations in Clyman, Gunnison, and Bear River bays would affect fish and wildlife and their habitat.

The Division is confident that any information necessary to provide baseline data will be collected during the EIS process, as well as the analysis of the data and the environmental impacts this project may have.

Once full Project analysis has been completed, lease stipulations should include a declaration of baseline environmental conditions for fish and wildlife and their habitat including bird usage and aquatic biota present in Clyman, Gunnison, and Bear River Bays. Lease stipulations should further specify a monitoring plan that will assess short-term and long-term impacts associated with evaporation pond expansion and GSL Minerals operations. The monitoring plan should include impact thresholds that trigger corresponding mitigation measures. For example, impact thresholds may include a decrease in the nesting population of American white pelicans in Gunnison Bay or a decrease in the molting populations of Canada geese in Bear River Bay. Examples of corresponding mitigation measures include removal of nearby dikes, a reduction in operational activities during specific times of the year, and/or a change in flushing water discharge points (i.e. from Bear River Bay to the vicinity of Ogden Bay).

The Division agrees that a monitoring plan is a good idea.

We appreciate the opportunity to provide these comments. In the future as this project progresses, USFWS would appreciate information on upcoming field visits and interagency coordination. If you need further assistance, please contact Paul Abate, Ecologist, or Nathan Darnall, Ecologist (Environmental Contaminants) at the letterhead address or (801) 975-3330 ext 130 or 137, respectively.

Sincerely,

Larry Crist
Utah Field Supervisor